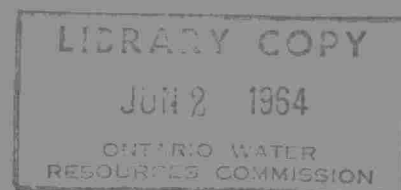


**THE
ONTARIO WATER RESOURCES
COMMISSION**

**REPORT ON
WATER POLLUTION SURVEY
CITY OF NORTH BAY**

JUNE 1961



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R E P O R T

o n

W A T E R P O L L U T I O N S U R V E Y

C I T Y O F N O R T H B A Y

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Ontario Water Resources Commission

June 1961

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C I T Y O F N O R T H B A Y

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REPORT

ONTARIO WATER RESOURCES COMMISSION

MUNICIPALITY: North Bay

RE: Water Pollution Survey

FIELD INSPECTION BY: G.R. Trewin & P. Lonergan

DATE OF INSPECTION: June 6, 7 & 8, 1961

REPORT BY: P. Lonergan

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INTRODUCTION

A water pollution survey was undertaken in the City of North Bay on June 6, 7 and 8, 1961.

The procedure followed was to examine the waters of Chippewa Creek and Lake Nipissing in the North Bay area, to locate all sources of pollution and to recommend a pollution abatement program.

GENERAL

The City of North Bay, having a population of 23,010, is located on the east shore of Lake Nipissing. The city is drained either directly to Lake Nipissing or to tributaries of that waterway. Chippewa Creek, which is the major stream, flows in a southerly direction to a point just north of Fisher St. where it swings south-west to Lake Nipissing. A tributary from the east joins Chippewa Creek just north of Fisher St.

Amelia Park, which is referred to in this report, is located on Lake Nipissing just north of James Ave.

SAMPLING PROCEDURE

Sampling points are shown on the appended map. These were selected with a view to providing essential information. Grab samples were collected, namely, forty (40) ounce samples for chemical analysis, and six (6) ounce samples for bacteriological analysis. Tests were conducted at the Ontario Water Resources Commission's Laboratory. The analyses of samples obtained from the various sources are shown in Tables 1 - 4.

EXPLANATION OF LABORATORY TESTS

The analytical determinations used in the survey are listed below. An explanation of each is given as an aid in interpreting the significance of the tests.

Biochemical Oxygen Demand (B.O.D.)

The biochemical oxygen demand test indicates the amount of oxygen required for stabilization of the decomposable organic matter found in sewage, sewage effluent, polluted waters or industrial wastes by aerobic biochemical action. The time and temperature used are five (5) days and 20°C., respectively.

The B.O.D. of a stream should not exceed 4 parts per million, while for raw sewage it may vary from 100 to 300 p.p.m. Sewage treatment plant, storm sewer and industrial waste effluents should have B.O.D. contents of 15 p.p.m. or less.

Solids

The analyses for solids include tests for total, suspended and dissolved solids. The former measures both the solids in

solution and in suspension. Suspended solids indicate the measure of undissolved solids of organic or inorganic nature whereas the dissolved solids are a measure of those solids in solution.

Land erosion, sewage and industrial wastes are significant sources of solids. Domestic sewage contains about 0.2 lbs. of suspended solids per capita per day. Solids in industrial wastes vary with the type of industry.

The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, interference with navigation, and injury to the habitat of fish.

The suspended solids content of effluents to streams should not exceed 15 p.p.m.

Turbidity

Turbidity is a measure of the fine suspended solids in water, such as silt and finely divided organic matter. Where suspended solids values approach 20 parts per million or less, the results are usually reported as turbidity in silica units.

Bacteriological Examinations

The membrane filter technique was used to obtain a direct enumeration of coliform organisms. These organisms are normal inhabitants of the intestines of man and other warm-blooded animals. They are always present in large numbers in sewage and are, in general, relatively few in number in other stream pollutants. The results are reported as M.F. coliform count per

100 millilitres.

Another method used to approximate the density of coliform organisms was the test known as the most probable number. The results are reported as M.P.N. per 100 millilitres.

The count in streams should not exceed 2,400. Raw sewage may contain many million coliform bacteria per 100 ml.

Oils and Ether Soluble Materials

These include oil and all other ether soluble materials such as tarry substances and greases. The presence of these pollutants renders water difficult and sometimes impractical to treat, either for industrial or domestic use. Oils make the stream unsightly and the water unfit for bathing. They coat water craft and are a hazard to wild fowl.

SEWAGE WORKS

(a) Sewer System

The City of North Bay is served by both separate and combined sanitary and storm sewers. Originally, separate sewers were laid out for the city, but at one time this practice was abandoned and a certain number of combined sanitary and storm sewers were constructed. In some cases, the sanitary sewer serves as a combined sewer.

There are four (4) septic tanks in operation on the system, namely, at Main and Golf Sts., near the west end of Gore St., First Ave. and at James Ave. and Queen St. These tanks discharge to Chippewa Creek, except for the latter which drains to Lake Nipissing.

(b) Sewage Pumping Stations

There are seven (7) sewage pumping stations in the sewage collection system. The station at Metcalfe St. still had to be completed at the time of this survey.

(c) Sewage Treatment Plant

The sewage treatment plant, which is of the activated sludge type, is situated on the east side of Queen St. between Regina and Monk Sts. The total design capacity of the plant is 4 M.G.D.

The main treatment process consists of grit removal, solids grinding, primary settling, aeration, final settling and chlorination. Sludge treatment consists of two stage digestion with heating facilities and sludge haulage.

PRESENT STATUS OF SOURCES OF POLLUTION

Tabulated in Table 1 is a description of all known sewer outlets to Lake Nipissing and the laboratory analyses of the samples collected. Similarly, outfalls to Chippewa Creek and the laboratory analyses of the samples collected are recorded in Table 2.

(a) Municipal Sewer Outlets to Lake Nipissing
and Chippewa Creek

LN-201.6(T); FC-0.5(T); FC-0.3(T); FC-0.2(T)

The discharges from the four (4) municipal septic tanks with outlets to Lake Nipissing and Chippewa Creek constituted sources of pollution within North Bay. Sample results shown in Table 1 and Table 2 indicated high B.O.D., suspended solids

and bacterial concentrations similar to raw sewage.

LN-200.1(W); LN-200.2(W); LN-200.4 (W)

Laboratory results revealed that the effluents from the above municipal storm sewers were unsatisfactory. In all cases the bacterial concentrations were high. The B.O.D. of the discharge at point LN-200.4(W) exceeded the Ontario Water Resources Commission's objective.

FC-1.2(W-1)

The effluent from the storm sewer at sample point No. FC-1.2(W-1) contained undesirable material. Sample results revealed an undesirable coliform content.

FC-0.8(WS)

The contents of the discharge from this municipal storm sewer at sample point No. FC-0.8(WS) contained a great deal of polluting material. Attention is directed to the high B.O.D. and excessive bacteriological content. Oil which was observed emanating from this outlet at the time of the survey showed up as brightly iridescent colours in Chippewa Creek.

FC-0.6(DS)

The ditch at sample point No. FC-0.6(DS) receives sanitary sewage from the storm sewer on Metcalfe St. Sample results show that the flow in this ditch was unsatisfactory with respect to B.O.D. and coliform contents.

(b) Sewage Treatment Plant

A summary of the sanitary chemical and bacteriological

analyses of samples collected from the North Bay sewage treatment plant during the period of April 2, 1961, to June 13, 1961, are shown in Table 3. The laboratory results of samples of the final effluent indicate that the activated sludge process has been stabilized at this plant. The last three (3) analyses show that a high quality effluent was being produced. Particular attention is directed to the good bacteriological quality.

(c) Industries

Canadian Pacific Railway Company

Ten (10) outlets to Lake Nipissing from the Canadian Pacific Railway Company, North Bay, were located during the survey. Of this number, eight (8) were found to be flowing. The analyses of samples collected at the following points were unsatisfactory - LN-200.6(I); LN-200.6(P-1); LN-200.8(I); LN-200.8(PS) and LN-200.9(I).

The following observations were made relative to the effluents from the latter outlets.

LN-200.6(I)

Oil observed in the effluent from this drain caused bright bands of colour in Lake Nipissing adjacent to the outfall. Sample results indicated adverse B.O.D. and bacterial contents.

LN-200.8(PS)

An odour characteristic of sewage was noted in the effluent from this outlet. The B.O.D. and coliform concentrations were unsatisfactory.

LN-200.9(I)

An oil slick was observed on the flow from this oil separator. The B.O.D. and suspended solids contents were not acceptable.

In addition to the above discharges, refuse consisting mainly of paper and lumber, along with some incombustible material, is deposited on ground adjacent to Lake Nipissing. This is material that is removed from railway cars during cleaning operations. Attempts to burn this refuse on the ground were unsatisfactory as a portion of it finds its way into the lake.

Ontario Northland Railway

The effluent from an oil separator located on Judge Ave., which is owned and operated by the Ontario Northland Railway, is discharged to a 30"Ø concrete drain with final disposal to Lake Nipissing. Drainage from three (3) ditches in the Township of West Ferris, and drainage from North Bay, also has access to this drain. A white precipitate was noted in the effluent to the lake on June 7, 1961, and an oil slick was observed on June 8, 1961. Subsequently, an examination revealed oil in the ditch on the west side of Kennedy Ave. There are a number of service stations fronting on this road.

The laboratory results of samples collected on June 7, 1961, showed that the discharge from this drain LN-201.8(I) had high B.O.D. and coliform contents.

On June 8, 1961, an examination was made of the oil separator. The analysis of a sample of the effluent collected from

the oil separator at this time had B.O.D. and ether soluble contents of 46 p.p.m. and 30 p.p.m., respectively. Oil was evident in the tank on the discharge side of the separator.

(d) Private Outfalls

The effluent from a septic tank serving St. Joseph's College on Harriet St. is discharged through a 6"Ø outlet to Lake Nipissing. The sanitary chemical and bacteriological analyses of samples collected at point No. LN-198.9(P) were unsatisfactory.

SUMMARY OF ANALYTICAL RESULTS OF LAKE AND STREAM SAMPLES

Samples were obtained from Lake Nipissing and Chippewa Creek. The sampling points are shown on the attached plan and the laboratory analyses are presented in Tables 2 and 4.

Eleven (11) samples were obtained from Lake Nipissing on June 7, 1961, for bacteriological examination. Only two (2) samples revealed bacterial counts in excess of the Ontario Water Resources Commission's objective of 2,400 per 100 ml. These samples were collected at points 10 and 11 opposite Chippewa Creek and Amelia Park. Samples collected on various days in May and June at points 12, 13, 14 and 15 generally revealed unsatisfactory coliform counts. Samples obtained at locations 16 and 17 with one exception were acceptable.

The analytical results of samples collected from Chippewa Creek revealed that the stream was in a satisfactory condition at Highway No. 17. The same may be said for the stream from Mud Lake. Chippewa Creek at John St. showed heavy bacterial con-

tamination. At Queen St. this stream showed impairment with respect to B.O.D. and coliform concentrations.

Samples collected from the watercourse at point LN-199.3(D) were satisfactory. The stream at LN-199.4(D) showed impairment with respect to B.O.D. and coliforms.

SUMMARY AND CONCLUSIONS

A water pollution survey was conducted in the City of North Bay on June 6, 7, and 8, 1961. As a result of this investigation, it was apparent that inadequately treated wastes were gaining access to Lake Nipissing and Chippewa Creek through ten (10) municipal sanitary and storm sewers, five (5) outlets from the Canadian Pacific Railway Company, one (1) outlet from the Ontario Northland Railway and one (1) from St. Joseph's College.

Where a connection carrying waste material to a municipal storm sewer is permitted, it is the responsibility of the municipality to exclude these wastes and to ensure that proper treatment facilities are provided either by connection to the sanitary sewer or by private means. In the case of private drains, the responsibility rests entirely with the individual.

In order to rectify waste disposal problems within the city, plans have been made to remove the four (4) municipal septic tanks from service. Action is being taken to divert domestic wastes to the sanitary sewer from the premises presently connected to the septic tank which has its outlet to Amelia Park.

To intercept the sewage flow to the septic tanks at the intersection of Golf and Main Sts. and near the west end of Gore St., a new gravity sewer is planned. The septic tank on First Ave. is scheduled to be taken out of service in 1962.

To prevent the discharge of wastes to the storm sewer on Metcalfe St., a sanitary sewer has been constructed along this street as well as a sewage pumping station at Metcalfe and Hardy Sts. Premises presently discharging sanitary wastes to the Metcalfe St. storm sewer will be required to connect to the new sanitary sewer.

Sanitary wastes and other wastes containing some oil from the Canadian Pacific Railway Company drain to Lake Nipissing. Material consisting mainly of paper and lumber cleaned from railroad cars is deposited on the ground adjacent to the lake.

The discharging of liquid wastes to Lake Nipissing by the C.P.R. should be discontinued. As an ultimate solution to the waste disposal problem at the Canadian Pacific Railway Company, serious consideration should be given to negotiation of an agreement with the City of North Bay for connection to the municipal sewerage system.

Similarly, the present method of refuse disposal is unsatisfactory. Refuse should be incinerated where possible in the incinerators provided. Attempts to burn it on the ground should be discouraged. Ash from the incinerator and material which cannot be readily burned should be hauled to the municipal dump. Furthermore, action should be taken to remove accumu-

lations adjacent to the lake and to prevent erosion of material dumped in this area.

The effluent from the Ontario Northland Railway oil separator on Judge Ave. was unsatisfactory with respect to B.O.D. and oil. Action should be taken to locate and eliminate the sources of organic waste as indicated by laboratory analysis. As an ultimate solution to the waste disposal problem at the Ontario Northland Railway, consideration should be given to negotiation of an agreement with the City of North Bay for connection to the municipal sewerage system.

Ditches in the Township of West Ferris are connected to the Ontario Northland Railway sewer which drains to Lake Nipissing. An examination should be made of waste disposal facilities for oil at the various service stations on the west side of Kennedy Ave. to eliminate oil observed in the road ditch.

Samples were collected from Lake Nipissing for bacterial examination. These were taken between Lake St. and James St. at the time of this survey. Laboratory results revealed that the lake water was of acceptable quality at all but two (2) points which were in the area opposite Chippewa Creek and Amelia Park. Samples obtained from the lake between Amelia Park and Regina St. on various dates in May and June showed adverse counts except at two(2) locations, namely, opposite the North Bay sewage treatment plant and Regina St.

Chippewa Creek and the tributary from Mud Lake at the North Bay by-pass were in good condition. Chippewa Creek at John and

Queen Sts. showed considerable pollution.

The adverse bacterial condition of Chippewa Creek and Lake Nipissing adjacent to the mouth of the watercourse will not improve until the sources of pollution noted in this report are eliminated. The present condition of the lake water at Amelia Park and along the beach to the sewage treatment plant cannot be attributed to the treated discharge from the sewage treatment works. The effluent is chlorinated in accordance with the requirements for all plants where summer chlorination is practised. The municipal sewage treatment plant is capable of providing complete treatment for an average daily flow of 4 M.G.D. Potential sources of pollution exist during periods of heavy rainfall and spring run-off when by-passing of dilute sewage to Lake Nipissing and Chippewa Creek may occur. At these times, an additional 4 M.G.D. of sewage is given primary treatment at the sewage works. Flows of dilute sewage in excess of 8 M.G.D. are by-passed to Chippewa Creek and/or Lake Nipissing at Oak St. and Queen St. respectively. Not to be overlooked are the effluents from municipal septic tanks, storm sewers, industrial and private outlets containing polluting material. These flow at all times. Reference may be made to Tables 1 and 2 appended to the report for information on these outlets.

Unless the present program to remove the municipal septic tanks from service is accelerated, pollution of Chippewa Creek and Lake Nipissing will undoubtedly continue. Furthermore, the program of separating sanitary sewage and storm water should

be expedited. Separation will greatly assist in preventing stream and lake pollution, and it should be undertaken wherever practicable.

RECOMMENDATIONS

1. As planned, action be taken by the City of North Bay to remove the remaining municipal septic tanks from service, namely, at Main and Golf Sts., near the west end of Gore St., First Ave., and at James Ave. and Queen St.
2. The City of North Bay locate and eliminate the sources of polluting material gaining access to the storm sewers as noted in this report.
3. The City of North Bay speed up its program of separating sanitary and storm flows.
4. Corrective measures be taken by the Canadian Pacific Railway to prevent the access of wastes to Lake Nipissing. Consideration be given to discharging liquid wastes to the municipal sewage works system.
5. The Ontario Northland Railway locate and eliminate the sources of organic waste gaining access to the oil separator. Failing this, consideration be given to discharging the effluent from this separator to the municipal sewage works system.
6. The Township of West Ferris locate and eliminate waste

discharges to the ditch on the west side of Kennedy Ave.

All of which is respectfully submitted,

G. M. Galimbert

Prepared by: P. Lonergan G.M. Galimbert, Director,
Supervised by: G.R. Trewin Sanitary Engineering Division.

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Approved by:

A. E. Perry
General Manager

T A B L E 1

ANALYTICAL RESULTS OF OUTLET SAMPLES TO LAKE NIPISSING

ALL ANALYSES REPORTED IN P.P.M. UNLESS OTHERWISE NOTED.

SAMPLING POINT No.	LOCATION AND GENERAL DESCRIPTION	DATE	M.F., COLIFORM COUNT/100 ML.	B.O.D. 5-DAY P.P.M.	S O L I D S			IRON AS FE P.P.M.	FLOW G.P.M.	REMARKS
					TOTAL P.P.M.	SUSP. P.P.M.	DISS. P.P.M.			
LN-198.4 D	DUCHESNAY RIVER ABOVE CONFLUENCE- LAKE NIPISSING	JUNE 7	1,250	14.	54	6	48		-	
LN-198.9 P	ST. JOSEPH'S COLLEGE - 6" SEPTIC TANK OUTLET	JUNE 7	1,880,000	65.	250	54	196		-	PARTIALLY SUB- MERGED
LN-199.0 P	ST. JOSEPH'S COLLEGE - WASTE OUTLET	JUNE 7	NOT SAMPLED							
LN-199.0 P-1	ST. JOSEPH'S COLLEGE OUTLET	JUNE 7	NO FLOW NOTED							
LN-199.1 D	CREEK AT HARRIET ST.	JUNE 7	NOT SAMPLED							
LN-199.3 D	CREEK AT HARRIET ST.	JUNE 7	325	1.5	80	6	74		150	CLEAR
LN-199.4 D	STREAM AT HARRIET ST.	JUNE 7	140,000	23	242	12	230		3	
LN-199.5 W	24" CORRUGATED OUTLET TO DITCH	JUNE 7	NO FLOW NOTED							
	DEPT. OF HIGHWAYS - 8" TILE TO POND APPROXIMATELY 12' X 30'	JUNE 7	SEEPAGE TO LAKE INSUFFICIENT FOR SAMPLING							
LN-199.7 P	OUTLET AT FOOT MATTAWA ST.	JUNE 7	NOT LOCATED							
LN-199.7 D	12" CONCRETE STORM SEWER TO DITCH NORTH-WEST CORNER NIPISSING AND GORMAN STS.	JUNE 7	NO FLOW NOTED							
	36" OVAL CORRUGATED STORM SEWER TO DITCH NORTH-WEST CORNER NIPISSING AND GORMAN STS.	JUNE 7	1,100	2.2	204	12	192		50	

TABLE 1 (CONT.)

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	M.F. COLIFORM COUNT/100 MI.	B.O.D. 5-DAY P.P.M.	S O L I D S			IRON AS FE P.P.M.	FLOW G.P.M.	REMARKS
					TOTAL P.P.M.	SUSP. P.P.M.	DISS. P.P.M.			
LN-199.8 W	15" CONCRETE STORM SEWER TIMMINS ST.	JUNE 7	NO FLOW NOTED							
LN-200.1 W	STORM SEWER TO WOODEN BOX CULVERT TO DITCH	JUNE 7	140,000	2.4	550	40	510		1	
LN-200.1 T	24" CORRUGATED SANITARY OUTFALL FROM NORTH BAY SEPTIC TANK NO. 1	JUNE 7	FLOW DIRECTED TO NEW SEWAGE TREATMENT PLANT							
LN-200.2 W	24" CONCRETE STORM SEWER - 10TH ST.	JUNE 7	21,000	1.8	284	14	270		15	
LN-200.2 P	OUTLET - COVERED WITH ROCK	JUNE 7	NOT LOCATED							
LN-200.4 W	16" CAST IRON STORM SEWER - FOREN ST.	MAY 31	24,000*	68	414	38	376		25	
		JUNE 7	2,600,000	26	560	232	328			
LN-200.5 D	30" CORRUGATED OUTLET TO DITCH - C.P.R.	JUNE 7	NO FLOW NOTED							
LN-200.6 P	6" STEEL OUTLET - C.P.R.	JUNE 7	NO FLOW NOTED							
LN-200.6 I	24" CORRUGATED OUTLET - C.P.R.	MAY 31	2,400+*	11	468	26	442			OIL - BRIGHT BANDS OF COLOUR
		JUNE 7	21,000	12	412	30	382			
LN-200.6 P-I	12" CAST IRON OUTLET - C.P.R.	MAY 31	2,400+*	6.8	62	22	40			
		JUNE 7	50,500	4.6	122	12	110			
LN-200.7 P	12" CAST IRON OUTLET	MAY 31	1,600*	1.8	346	74	272			
		JUNE 7	4	1.2	330	10	320			
LN-200.8 P	6" CAST IRON OUTLET	MAY 31	0*	0.7	58	4	54		1/4	
		JUNE 7	2	1.9	66	6	60			
LN-200.8 I	2- 6" STEEL OUTLETS FROM 2-COMPT. WOODEN TANK C.P.R.	MAY 31	24,000+*	5.6	162	12	150	-	3	
		JUNE 7	3,300	2.8	388	16	372	1.4		
LN-200.8 P-I	6" CAST IRON OUTLET - FROM TANK C.P.R.	MAY 31	24,000+*	20	108	24	84			SEWAGE ODOUR
		JUNE 7	3,800	6.4	102	28	74			

TABLE I (CONT.)

SAMPLING POINT No.	LOCATION AND GENERAL DESCRIPTION	DATE	M.F. COLIFORM COUNT/100 ML.	B.O.D. 5-DAY P.P.M.	S O L I D S			IRON AS FE P.P.M.	FLOW G.P.M.	REMARKS
					TOTAL P.P.M.	SUSP. P.P.M.	DISS. P.P.M.			
LN-200.9 I	EFFLUENT FROM OIL SEPARATOR - C.P.R.	MAY 31 JUNE 7	210* 40	14 16	794 1038	58 40	736 998	6.8 14.8		OIL SLICK
LN-201.0 D	DITCH FROM C.P.R.	MAY 31 JUNE 7	<10* 150	2.4 5	716 582	66 34	650 548	11.6 6.6		
LN-201.2 P	18" CONCRETE OUTLET - RAHN METALS LTD. REGINA ST.	MAY 31 JUNE 7	22* 40	2.4 7.	602 224	54 8	548 216	8 4.4		IRON DEPOSITS
LN-201.2 W	12" CORRUGATED STORM SEWER - REGINA ST.	MAY 31 JUNE 7	22* 50	2.4 2.0	602 570	54 44	548 526	8 -		
LN-201.3 T	NORTH BAY S.T.P. OUTFALL - 36" CORRUGATED	JUNE 7	SEE TABLE 3						2775	CLEAR
LN-201.4 D	CHIPPewa CREEK AT QUEEN ST.	JUNE 7	SEE TABLE 2		SAMPLING POINT NO., FC-0.0				7500	
LN-201.6 T	10" ABESTOS-CEMENT SANITARY OUTLET - NORTH-WEST CORNER JAMES AVE. AND QUEEN ST.	MAY 31 JUNE 7	240,000+* 390,000	24 137	106 394	8 56	98 338			
LN-201.7 W	12" CONCRETE STORM SEWER - CHARLES ST.	JUNE 7	NO FLOW NOTED							SEWAGE ODOUR REPORTED AT TIMES
LN-201.8 I	30" CONCRETE DRAIN FROM O.N.R. - JUDGE AVE.	JUNE 7	110,000	65	662	50	612			PARTIALLY SUBMERGED

* M.P.M. PER 100 ML.

T A B L E 2

ANALYTICAL RESULTS OF OUTLET SAMPLES TO CHIPPEWA CREEK

ALL ANALYSES REPORTED IN P.P.M. UNLESS OTHERWISE NOTED.

SAMPLING POINT NO.	LOCATION AND GENERAL DESCRIPTION	DATE	M.F. COLIFORM COUNT/100 ML.	B.O.D. 5-DAY P.P.M.	S O L I D S			IRON AS FE P.P.M.	FLOW G.P.M.	REMARKS
					TOTAL P.P.M.	SUSP. P.P.M.	DISS. P.P.M.			
FC-2.6	CHIPPEWA CREEK AT HIGHWAY NO. 17	JUNE 7	950	2.2	88	10	73			
FC-2.1 W	STORM SEWER - DALE ST.	JUNE 7	NOT SAMPLED							
FC-1.8 W	8" CAST IRON CASSELLS ST.	JUNE 7	NO FLOW NOTED							
FCD-1.5 W	18" CORRUGATED STORM SEWER TO DITCH	JUNE 7	FLOW NOT SUFFICIENT FOR SAMPLING							
FCD-1.5	STREAM FROM MUD LAKE BELOW BY-PASS	JUNE 7	250	2.1	94	4	90			
FC-1.2 W	18" CONCRETE STORM SEWER - CHIPPEWA ST.	JUNE 7	NO FLOW NOTED							
FC-1.2 R	CORRUGATED BY-PASS CHIPPEWA SEWAGE PUMPING STATION	JUNE 7	NO FLOW NOTED							
FC-1.2 W-1	48" CONCRETE STORM SEWER - CHIPPEWA ST.	JUNE 7	66,000	8.4	294	16	278			PARTIALLY SUBMERGED
FC-1.0 W	15" CONCRETE STORM SEWER - FISHER ST.	JUNE 7	NO FLOW NOTED							
FC-0.8 WS	36" CORRUGATED STORM SEWER - 2ND AVE.	JUNE 7	3,260,000	42.	316	50	266			PARTIALLY SUBMERGED - SEWAGE VISIBLE - OIL- BRIGHT BANDS OF COLOUR
FC-0.7	CHIPPEWA CREEK AT JOHN ST.	JUNE 7	122,000	1.8	146	62	84			
FC-0.6 DS	DITCH RECEIVING SEWAGE FROM STORM SEWER - METCALFE ST.	JUNE 7	385,000	15	230	30	200			
FC-0.5 T	10" GLAZED TILE SANITARY OUTFALL - 1ST AVE. SEPTIC TANK	JUNE 7	710,000	230	682	200	482			PARTIALLY SUBMERGED

TABLE 2 (CONT.)

SAMPLING POINT No.	LOCATION GENERAL DESCRIPTION	DATE	M.F. COLIFORM COUNT/100 ML.	B.O.D 5-DAY P.P.M.	S O L I D S			IRON AS FE P.P.M.	FLOW G.P.M.	REMARKS
					TOTAL P.P.M.	SUSP. P.P.M.	DISS. P.P.M.			
FC-0.4 W	21" GLAZED TILE STORM SEWER - McINTYRE ST.	JUNE 7	FLOW NOT SUFFICIENT FOR SAMPLING						EVIDENCE OF SEWAGE	
FC-0.3 W	15" CONCRETE STORM SEWER	JUNE 7	FLOW NOT SUFFICIENT FOR SAMPLING							
FC-0.3 T	SANITARY OUTFALL - MAIN & GOLF STS. SEPTIC TANK	MAY 31 JUNE 7	24,000+* TANK WAS BEING CLEANED AT THE TIME OF SURVEY AND SEWAGE FLOW WAS BY-PASSING TANK	280	576	124	452			SUBMERGED OUTLET
FC-0.3 P	4" PRIVATE DRAIN	JUNE 7	FLOW NOT SUFFICIENT FOR SAMPLING							
FC-0.3 R	36" CONCRETE STORM SEWER - OAK ST.	JUNE 7	NO FLOW NOTED							
FC-0.3 I	12" CONCRETE PRIVATE DRAIN	JUNE 7	121,000	2.1	204	24	180		2	ONLY
FC-0.2 T	15" GLAZED TILE SANITARY OUTFALL FROM SEPTIC TANK NEAR WEST END OF GORE ST.	MAY 31 JUNE 7	24,000+* 10,700,000	145 80	353 320	156 86	202 234		60	APPEARANCE RAW SEWAGE
FC-0.2 P	WOODEN BOX DRAIN	JUNE 7	NO FLOW NOTED							
FC-0.0	CHIPPEWA CREEK AT QUEEN ST.	APRIL 26 MAY 3 15 25 30 31 JUNE 1 5 6 7 13	- - - - 174,000 - 56,000 19,000 12,500 3,100 204,000	2.0 3.6 50 4.6 - 7 6 - 2.7 3.6 -	270 162 536 122 - 126 86 - 106 78 -	- 28 420 38 - 46 8 - 30 16 -	- 134 116 84 - 80 78 - 76 62 -		7500	

* M.P.N. PER 100 ML.

T A B L E 3

NORTH BAY SEWAGE TREATMENT PLANT

SUMMARY OF ANALYSES - FINAL EFFLUENT

DATE 1961	B.O.D. 5-DAY	S O L I D S			M.F. COLIFORM COUNT PER 100 ML.
		TOTAL	SUSP.	DISS.	
APRIL 2	24	278	36	242	-
12	26	306	34	272	-
19	22	320	32	288	-
26	34	272	30	242	-
MAY 3	18	348	80	268	-
15	21	280	20	260	-
25	10	284	18	266	-
31	24	312	30	282	-
JUNE 1	7	280	22	258	0
7	1.6	270	10	260	.
7	12	278	10	268	30
13					0

NOTE: ALL ANALYSES IN P.P.M. UNLESS OTHERWISE INDICATED.

T A B L E 4

LAKE NIPISSING SAMPLING POINTS

SUMMARY OF BACTERIOLOGICAL RESULTS

SAMPLING POINT No.	DATE 1961	LOCATION	M.F. COLIFORM COUNT/100 ML.
1	JUNE 7	100' FROM SHORE AT LAKE ST.	79
2	JUNE 7	100' FROM SHORE BETWEEN 9TH AND 10TH STS.	31
3	JUNE 7	100' FROM SHORE NORTH OF GOVERNMENT DOCK	110
4	JUNE 7	75' OFF WEST END GOVERNMENT DOCK	24
5	JUNE 7	250' FROM SHORE SOUTH OF GOVERNMENT DOCK	120
6	JUNE 7	100' FROM SHORE OPPOSITE C.P.R. ROUNDHOUSE	3
7	JUNE 7	100' FROM SHORE AT REGINA ST.	0
8	JUNE 7	100' FROM SHORE OPPOSITE S.T.P.	120
9	JUNE 7	1,000' FROM SHORE OVER S.T.P. OUTLET	3
10	JUNE 7	100' FROM MOUTH OF CHIPPEWA CREEK	4,100
11	JUNE 7	100' FROM SHORE AT AMELIA PARK	6,800
12	JUNE 1	SOUTH END OF AMELIA PARK IN 3' WATER	6,400
13	MAY 30 JUNE 1 JUNE 5 JUNE 13	MIDDLE OF AMELIA PARK IN 3' WATER	.380 51,000 60 152,000
14	JUNE 1	NORTH END OF AMELIA PARK IN 3' WATER	7,200
15	MAY 30 JUNE 5 JUNE 13	BEACH IN FRONT OF PLANT	77,000 350 27,000
16	MAY 30 JUNE 1 JUNE 5 JUNE 13	WEST END OF FILL OVER PLANT OUTFALL	20 16,300 181 0
17	JUNE 5 JUNE 13	FOOT OF REGINA ST.	10 1,620



- LEGEND**
- FC-2.6 SAMPLING POINTS SHOWING STREAM AND MILEAGE
- LN-201.6 LAKE OR STREAM AND MILEAGE AT OUTFALL TYPE OF OUTFALL
6. LAKE SAMPLING POINTS
- I INDUSTRIAL WASTE EFFLUENT
- P PRIVATE SEWER OUTFALL
- R RELIEF SEWER FROM SANITARY OR COMBINED SEWER
- S UNTREATED SEWAGE
- T MUNICIPAL TREATMENT PLANT EFFLUENT
- W STORM SEWER
- D DITCH, CREEK OR RIVER

ONTARIO WATER RESOURCES COMMISSION	
CITY OF NORTH BAY	
POLLUTION SURVEY	
SCALE: 1"=600'	
DRAWN BY: BW	DATE: JUNE 1961
CHECKED BY: OVB.	DRAWING No. 61-89A

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